

Thick Film Chip Attenuator, Surface Mount, Balanced π Type



FEATURES

- Single component reduces board space and component counts - replaces 3 or more components
- Tolerance matching and temperature tracking superior to individual components
- Maximum power dissipation: 0.075 W for CZB06S
- Consult factory for extended values, non-standard tolerances, impedance matching and other attenuation values
- Frequency range: DC to 3 GHz
- Surface mount chip attenuator in a resistor array package
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



Note

* This datasheet provides information about parts that are RoHS-compliant and/or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information/tables in this datasheet for details.

STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | POWER RATING $P_{70\text{ }^\circ\text{C}}$ W | IMPEDANCE Ω | ATTENUATION RANGE AND TOLERANCE | |
|--------------|--|-----------------------|---------------------------------|-------------------------|
| | | | $\pm 0.3\text{ dB (L)}$ | $\pm 0.5\text{ dB (H)}$ |
| CZB06S | 0.075 | 50/75 | 0 dB, 1 dB to 5 dB | 6 dB to 10 dB |

Note

• Power rating depends on the maximum temperature at the solder point, the component placement density and the substrate material.

| IMPEDANCE | 50 Ω | 75 Ω |
|----------------------------------|-------------|-------------|
| Attenuation in dB ⁽¹⁾ | 1 | 1 |
| | 1.5 | 1.5 |
| | 2 | 2 |
| | 3 | 3 |
| | 4 | 4 |
| | 5 | 5 |
| | 6 | 6 |
| | 10 | 10 |

Note

⁽¹⁾ Consult factory for other attenuations.

CIRCUIT SCHEMATIC



TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | CZB06S |
|--|------------------|-------------|
| Rated dissipation at 70 $^\circ\text{C}$ | W | 0.075 |
| VSWR | | 1.2 max. |
| Category temperature range | $^\circ\text{C}$ | -55 to +150 |
| Frequency range | | DC to 3 GHz |

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CZB06S04020050LRT (preferred part numbering format)



| MODEL | PIN COUNT | ATTENUATION | IMPEDANCE | TOLERANCE | PACKAGING | SPECIAL |
|--------|------------|---|--|--|--|--|
| CZB06S | 04 = 4 pin | 010 = 1.0 dB 015 = 1.5 dB 020 = 2.0 dB 100 = 10.0 dB 000 = 0 dB | 050 = 50 Ω 075 = 75 Ω | H = $\pm 0.5\text{ dB}$ L = $\pm 0.3\text{ dB}$ | EA = Lead (Pb)-free, T/R RT = Tin lead, T/R | (Dash number) Up to 1 digit Blank = Standard |

Note

• For additional information on packaging, refer to the Surface Mount Network Packaging document (www.vishay.com/doc?31540).

DIMENSIONS

4-Terminal device

S - Version



| GLOBAL MODEL | DIMENSIONS in inches (millimeters) | | | | | | |
|--------------|------------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------------|--------------------------------|--------------------------------|
| | L | W | T | A | P | B | B* |
| CZB06S | 0.063 ± 0.006 (1.60 ± 0.15) | 0.059 ± 0.006 (1.50 ± 0.15) | 0.020 ± 0.004 (0.51 ± 0.10) | 0.024 ± 0.006 (0.61 ± 0.15) | 0.031 (0.80) | 0.012 ± 0.006 (0.30 ± 0.15) | 0.012 ± 0.006 (0.30 ± 0.15) |

| GLOBAL MODEL | SOLDER PAD DIMENSIONS in inches (millimeters) | | | | |
|--------------|---|--------------|--------------|--------------|--------------|
| | c | w | d | a | b |
| CZB06S | 0.031 (0.80) | 0.122 (3.10) | 0.014 (0.36) | 0.025 (0.63) | 0.045 (1.15) |



| PERFORMANCE | | | |
|--|---|----------------------------------|---------------|
| TEST | CONDITIONS OF TEST | TEST RESULTS (TYPICAL TEST LOTS) | |
| | | 0.5 dB to 5 dB | 6 dB to 10 dB |
| Endurance test at 70 °C per EIA 575-3.14 | 1000 h at 70 °C, 1.5 h "ON", 0.5 h "OFF" | ± 0.2 dB | ± 0.3 dB |
| Overload per EIA 575-3.6 | Short time overload | ± 0.2 dB | ± 0.3 dB |
| Thermal shock | Per EIA 575-3.5 | ± 0.2 dB | ± 0.3 dB |
| Moisture resistance | Per EIA 575-3.10 | ± 0.2 dB | ± 0.3 dB |
| Resistance to soldering heat | 10 s at 260 °C solder bath temperature EIA 575 3.8 | ± 0.2 dB | ± 0.3 dB |
| High temperature exposure | Per EIA 575-3.7 | ± 0.2 dB | ± 0.3 dB |
| Low temperature operations | Per EIA-575-3.6 | ± 0.2 dB | ± 0.3 dB |
| Solderability and leaching | EIA 575-3.12 | 95 % coverage | |



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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А